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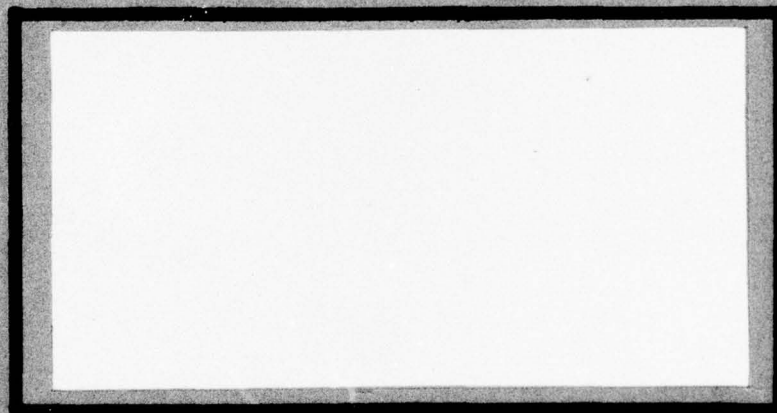UNITED STATES AIR FORCE

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Wright-Patterson Air Force Base, Ohio

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AN EXPLORATORY STUDY OF CONFLICT
RESOLUTION STRATEGIES EMPLOYED
BY PROJECT MANAGERS

James W. Goodart, Captain, USAF
David L. Thomas, Captain, USAF

LSSR-27-77B

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This research effort was an exploratory study of conflict situations and conflict resolution strategies as they appear in small conceptual phase projects or study tasks. Personal discussion with the project managers in the Aeronautical Systems Division Development Planning Directorate (ASD/XR), Wright-Patterson Air Force Base, Ohio, was the technique used to acquire the data for the research. The research resulted in the identification of five conflict situations and five conflict resolution strategies. The five conflict situations were conflict over: administrative procedures, project commitment, overload, technical opinions and performance trade-offs, and personal conflict. The five conflict resolution strategies were cooperating, accepting, persuading, transferring, and reordering. The conflict situations and conflict resolution strategies identified in this research, with the exception of conflict over administrative procedures and technical opinions, are different from those found in the literature. A spinoff from the research was the development of a validation device, which could be developed into a questionnaire by future researchers.

AN EXPLORATORY STUDY OF CONFLICT RESOLUTION

STRATEGIES EMPLOYED BY

PROJECT MANAGERS

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

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By

James W. Goodart, BA   David L. Thomas, BA
Captain, USAF   Captain, USAF

September 1977

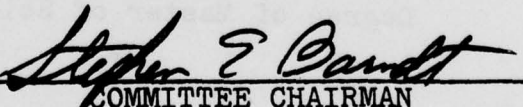This thesis, written by

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and

Captain David L. Thomas

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INTRODUCTION

Background of the Problem

Efficient utilization of the resources available to
the armed services has become increasingly more important
when viewed with respect to rising costs and present and
forecast budgetary constraints imposed on the Department of
Defense. In 1964, the DOD budget was 42.9 percent of the
Federal budget and 8.2 percent of the Gross National Product
(GNP). However, by FY 76 the DOD budget comprised only 24.1
percent of the Federal budget and 5.5 percent of the GNP
(see Table 1). This downward trend in share of the Federal
budget has challenged the armed services to maintain defense
capabilities while exercising fiscal responsibility, to get
the most for the money, to reduce cost and mistakes, and to
improve mission performance. New managerial techniques have
been introduced in response to these challenges.

One technique, project management, evolved as a
result of the inability of traditional bureaucratic organi-
zations to efficiently utilize resources in a rapidly chang-
ing environment. The inability of the functionally specialized
organization to respond to the unique requirements of non-
recurring projects is a result of its reliance on formal
lines of organization, specialization, and standard operating

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Table 1

Defense Budget, Federal Budget, and GNP for Selected Years
FY 1978 Department of Defense Budget
(Billions of Dollars)

Selected Years	Federal Budget Outlays				DOD Outlays as % of	
	GNP	Net Total	Dept of Defense	Other	GNP	Federal Budget
1950 Lowest year since World War II a/	$ 264.9	$ 42.6	$ 12.0	$ 30.6	4.5%	28.2%
1953 Korea peak	360.5	76.1	47.5	28.6	13.2%	62.4%
1964 Last prewar year	616.2	118.6	50.8	67.8	8.2%	42.9%
1968 SEA peak	829.9	178.8	78.0	100.8	9.4%	43.6%
1976 Last actual year	1,609.5	366.5	88.5	278.0	5.5%	24.1%
1977 Budget estimate	1,827.6	411.2	98.3	312.9	5.4%	23.9%
1978 Budget estimate	2,038.4	440.0	110.1	329.9	5.4%	25.0%

a/ In constant prices, and as a percentage of GNP.

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procedures. Project management is considered a viable alternative to functional organization for unique, non-recurring efforts; in fact,

> . . . both the Department of Defense and industry have turned to a project form of organization in an effort to increase the efficiency with which total organizational resources are used in achieving the desired goal--a new product or system [1:1].

Statement of the Problem

Within the United States Air Force, project management is employed extensively in the research and development of weapon systems. The high monetary cost of research and development programs and the importance of timely and capable weapon systems to our national security dictates that projects be managed effectively. If these vital projects are to be so managed, new project managers need to be well prepared to resolve the conflicts they will face, and present project managers need to be given the opportunity to sharpen their conflict management skills. The methods of conflict resolution currently being employed by some Air Force project managers should be made available. However, there has been no research to identify specific conflict resolution strategies commonly used by Air Force project managers.

Application of Project
Management

Project management is an innovation in organizational structure. Stewart suggested that seldom are new ideas or techniques accepted immediately. Business executives who have recognized the advantages of project management for applicable tasks have gained an advantage over those executives who have been slow to utilize project management. In general, the aerospace industry and construction industry have appreciated project management's value and versatility. Users of project management are introducing new products faster than competitors and meeting schedules and other commitments with greater reliability (9:328). Further, Kast and Rosenzweig believe that project management is one of the most important innovations in organizational structure. They feel it will be used increasingly in new areas for problems such as transportation, urban renewal, and pollution control as well as in the commercial and government sectors (6:234).

Project management is not a panacea. The application of project management should be the result of thorough evaluation of the situation confronting any organization. Stewart expressed the opinion that four basic determinants should be considered before instituting project management: (1) scope, (2) unfamiliarity, (3) complexity, and (4) stake. Scope implies a one-time undertaking, with a definite end result that is greater in size and complexity than any

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previous undertaking. <u>Unfamiliarity</u> is concerned with a unique situation with a high degree of uncertainty. <u>Complexity</u> exists when two or more intraorganizational tasks are interdependent and may affect the timely completion of other tasks. The final determinant, <u>stake</u>, is possibly the most important. There is a great deal at stake if failure to complete a task in a predetermined time interval or budget constraint results in an adverse effect on the organization. Also, the stake of a task is determined by the far-reaching effects resulting in the failure to complete the task, such as weakened national defense posture. If one or more of these determinants are present, then a case for project management is strong (9:330). All four determinants are present in the Air Force acquisition process. There is a great deal of unfamiliarity. Advancing the state-of-the-art necessitates complex technology. Several hundred people and millions of dollars are involved and a weakened national defense posture is at stake.

Reflective of the importance of the determinants discussed above is the Department of Defense (DOD) policy

> . . . that the acquisition of major weapons systems will be directed by responsible managers under the concept of program management [8:4].

The concept of program management is operationalized through a specifically designed organization usually called the program office. The responsible manager who is in charge of a major program such as a weapons system development is

called the program manager (8:2). In practice, the DOD

program manager operates in much the same way and is faced

with the same kinds of problems as the project manager of a

large-scale project in civilian industry.

Each major program is comprised of smaller projects

that serve to facilitate the development of the entire sys-

tem. The overall success of the program is dependent upon

the successful management of these projects. The indivdual

that is in charge of a smaller project that occurs in the

course of the development of a major system is referred to

as the project manager.

The project manager has the responsibility to effec-

tively administer his project, and his managerial skills

could be expected to be a major factor in the accomplishment

of this objective. Barndt succinctly captured the role of

the project manager:

> The project manager's role is typically to
> direct and integrate resources in the development
> and production of a system while meeting perform-
> ance, schedule, and cost objectives [1:25].

Thamhain and Wilemon felt the project manager must learn to

successfully deal with several managerial issues. First,

project managers must develop support for their projects.

Second, project managers must effectively deal with conflict

situations that arise (12:1).

> Project managers frequently indicate that one
> of the requirements for effective performance is
> the ability to effectively manage various conflicts
> and disagreements which invariably arise in task
> accomplishment . . . if project managers are aware
> of the major causes of disagreements in the various

project life cycle phases there is a greater likeli-
hood that detrimental aspects of these potential
conflict situations can be avoided or minimized
[12:2].

There is a valid requirement for project managers to formu-
late strategies to deal with conflict that may arise.
Strategies, in the context of conflict resolution, are
defined as the specific methods employed by a project mana-
ger to resolve conflicts he may encounter in the accomplish-
ment of his assigned task.

The project manager relies on the functional organi-
zation for support for his project. Project organization is
generally superimposed upon the functional organization,
creating new and complex relationships for both the project
manager and the functional organization (see Figure 1).
Thus, "this organizational structure provides the necessary
flexibility to manage the complex interdependent tasks that
are involved in modern development projects [10:2]."

There are certain problems associated with using a
matrix organization, one of these is ambiguity of authority--
the overlapping of authority caused by having two or more
bosses. In effect, the matrix concept violates the principle
of "unity of command" and provides the potential for con-
flict. Figure 1 depicts the matrix relationship between the
project organization and the functional organization (6:231).
There are two primary flows of authority in the matrix
organization: the vertical flow of the functional authority
and the horizontal flow of the project authority (6:233).

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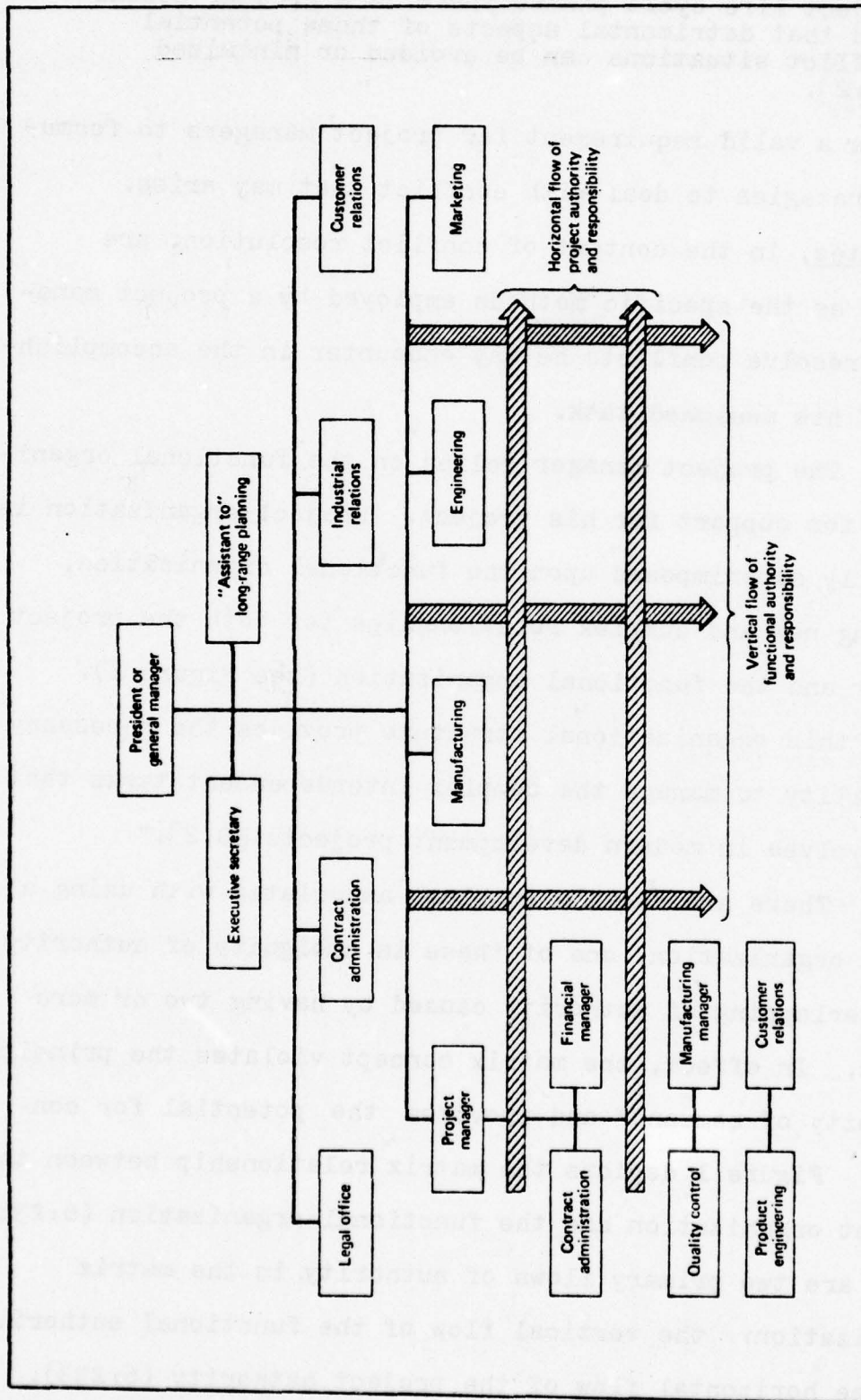
Fig. 1. Functional Organization with Project Manager in a Line Capacity (David I. Cleland and William R. King, Systems Analysis and Project Management, McGraw-Hill Book Company, New York, 1968, p. 177.)

It is possible that a significant amount of the project manager's time and energy is used in the process of resolving conflict within the project organization and in interfacing with the functional organization. If such a belief is valid, it would be of value to the inexperienced project manager and the project to which he is assigned if knowledge could be gained concerning frequently used conflict resolution strategies used by experienced project managers. Thamhain and Wilemon suggest this by saying, ". . . project managers need to be aware of their conflict resolution style and its potential effect on key interfaces [12:8]."

Scope

This research documents conflict resolution strategies used by project managers involved in small conceptual study tasks. Research was accomplished using project managers working in the Deputy for Development Planning, Aeronautical Systems Division (ASD/XR), Wright-Patterson AFB, Ohio. Sampling from and narrowing the scope to ASD/XR project managers was accomplished for the following reasons:

1. ASD/XR used project management extensively and such use had the potential for conflict because it involved many interfaces.

2. It was felt that a more comprehensive study could be done using a specific organization rather than several organizations.

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3. ASD/XR is co-located at the same base with the researchers and allowed for personal discussions and observations. Greater detail and elaboration will be given in Chapter III, which deals with the research design.

Objective

The objective of the research was to determine the conflict resolution strategies commonly used by selected Air Force project managers in the management of their conceptual study tasks.

Research Questions

The following research questions guided the research effort:

1. What conflict situations are encountered by Air Force project managers in the accomplishment of conceptual study tasks?

2. What are the conflict resolution strategies commonly used by the Air Force project managers in specific situations identified in answer to research question 1?

Chapter II

CONFLICT AND PROJECT MANAGEMENT

Conflict is a situation of competition in which the parties are cognizant of the incompatability of present and potential future positions.[1] Conflict is present everywhere. As Boulding said, "It is found everywhere in the world of man, all the social sciences study it [3:1]." Economists study conflict in unions and firms, political scientists study its presence in religious organizations and other social groups. Boulding summarized conflict as ". . . an important part of specialized study of industrial relations, international relations or any other relations [3:10]."

Kast and Rosenzweig stated that, "Conflict can have functional as well as dysfunctional effects on persons, groups and organizations . . . [6:316]." Conflict can be a positive force within the organization. It can promote innovations and creativity, precluding the organization from moving toward static equilibrium and entropy (6:318). On the other hand, excessive conflict can have an adverse effect in the organization. Some examples of adverse effects are

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[1]Conflict must involve at least two parties. A party is a behavioral unit capable of assuming different positions while retaining its identity; e.g., person, family, organization, group.

withholding information, passing bad information, and duplication of effort. Poor coordination and communications are additional manifestations of conflict (6:463).

Sources of Conflict

A firm understanding of the sources of conflict and modes of resolution is important before identifying the specific strategies used by the Air Force project manager. Previous study has identified seven sources of conflict in the project organization and five modes of conflict resolution (2:10). According to Thamhain and Wilemon, the seven possible sources of conflict confronting the project manager are the following:

CONFLICT OVER PROJECT PRIORITIES. The views of project participants often differ over the sequence of activities and tasks which should be undertaken to achieve successful project completion. Conflict over priorities may occur not only between the project team and other support groups but also within the project team.

CONFLICT OVER ADMINISTRATIVE PROCEDURES. A number of managerial and administrative-oriented conflicts may develop over how the project will be managed; i.e., the definition of the project manager's reporting relationships, definition of responsibilities, interface relationships, project scope, operational requirements, plan of execution, negotiated work agreements with other groups, and procedures for administrative support.

CONFLICT OVER TECHNICAL OPINIONS AND PERFORMANCE TRADEOFFS. In technology-oriented projects disagreements may arise over technical issues, performance specifications, technical tradeoffs, and the means to achieve technical performance.

CONFLICT OVER MANPOWER RESOURCES. Conflicts may arise around the staffing of the project team with personnel from other functional and staff support

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areas or from the desire to use another department's personnel for project support even though the personnel remain under the authority of their functional or staff superiors.

CONFLICT OVER COST. Frequently, conflict may develop over cost estimates from support areas regarding various project work breakdown packages. For example, the funds allocated by a project manager to functional support groups might be perceived as insufficient for the support requested.

CONFLICT OVER SCHEDULES. Disagreements may develop around the timing, sequencing, and scheduling of project-related tasks.

PERSONALITY CONFLICT. Disagreements may tend to center on interpersonal differences rather than on "technical" issues. Conflicts often are "ego-centered" [11:3-4].

These seven areas of conflict were used in a questionnaire administered to approximately 100 project managers (11:3-4). In the survey, the subjects were requested to rank the potential conflict situations in levels of intensity using a four-point scale. Figure 2 depicts the mean conflict intensity. The project was subdivided into four life cycle stages and the respondents were then asked to rank order the sources of conflict for each of the stages. Figure 3 depicts the relative intensity of conflict over the life cycle of projects. In essense, the research showed that sources of conflict are present throughout the life of the project and may vary in intensity depending on the project's maturity.

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Fig. 2. Mean Conflict Intensity Over Project Life Cycle
(Hans J. Thamhain and David L. Wilemon, "Conflict Management
in Project Life Cycles," <u>Sloan Management Review</u>, Vol. 16,
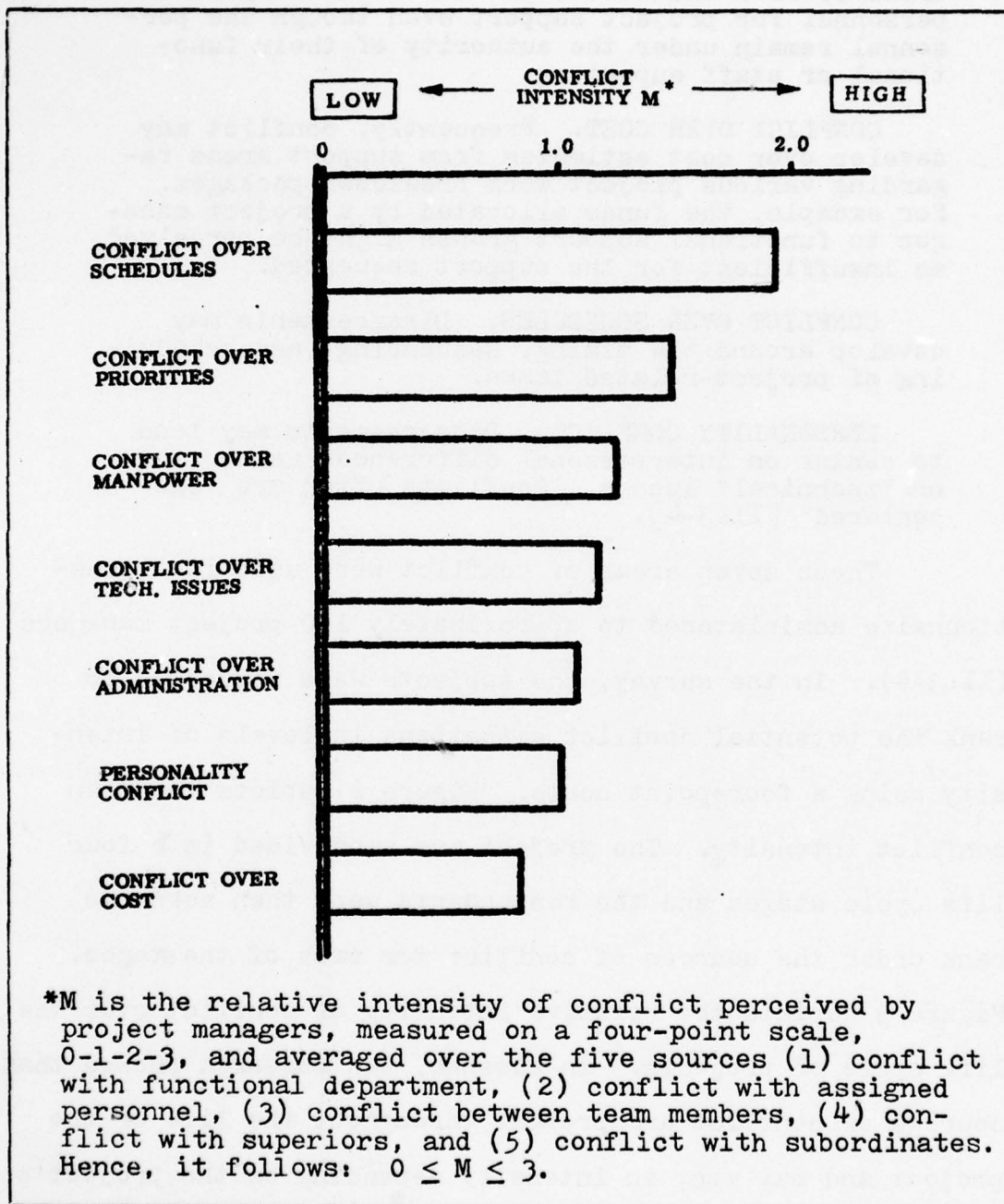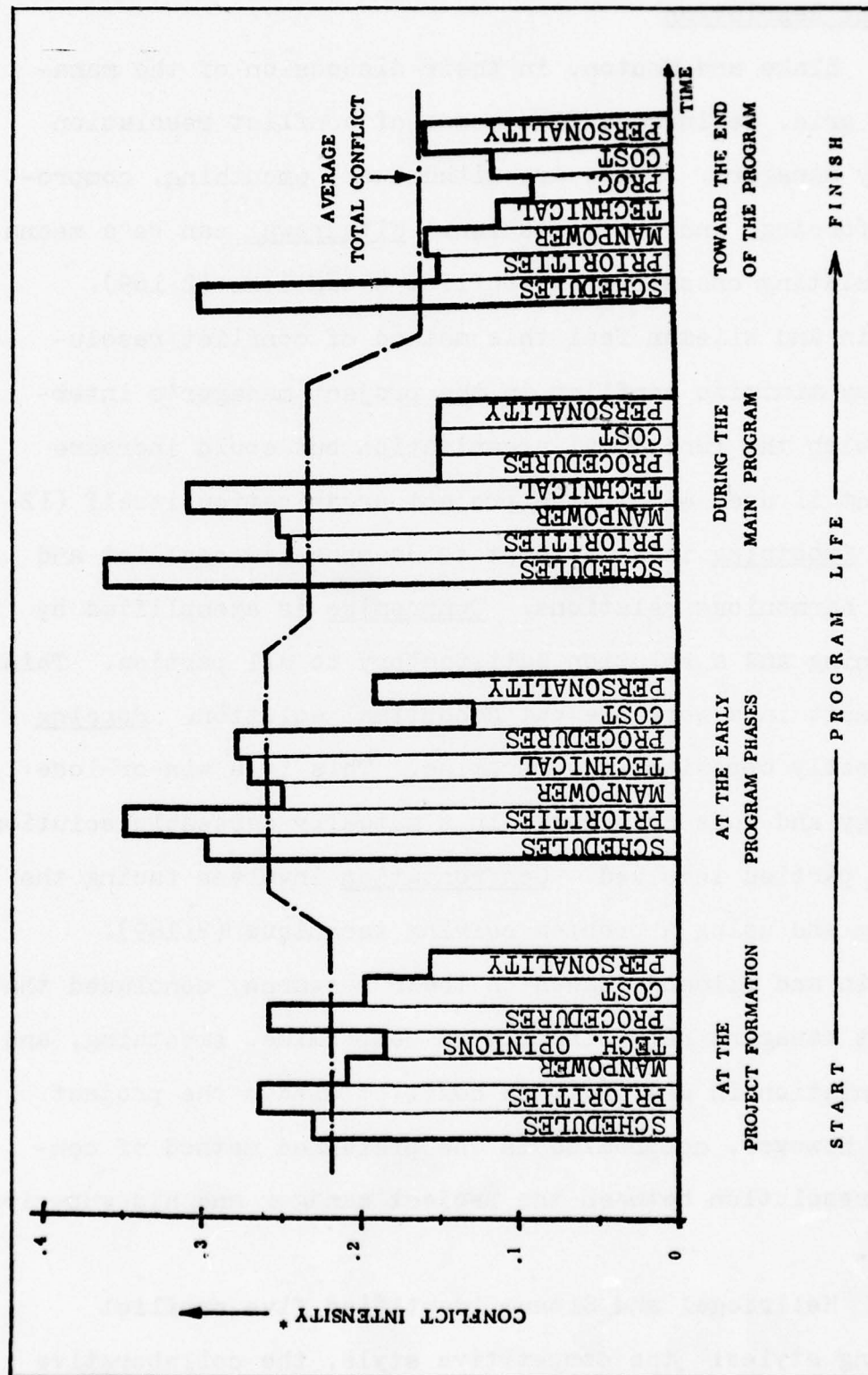No. 3, pp. 30-42, January 1975.)

Fig. 3. Relative Conflict Intensity Over the Project Life Cycle (Hans J. Thamhain and David L. Wilemon, "Conflict Management in Project Life Cycles," Sloan Management Review, Vol. 16, No. 3, pp. 30-42, January 1975.)

Conflict Resolution

Blake and Mouton, in their discussion of the managerial grid, delineated five modes of conflict resolution used by managers. These are withdrawal, smoothing, compromise, forcing, and confrontation. Withdrawal can be a means of insulating oneself from conflict situations (2:169). Thamhain and Wilemon feel this method of conflict resolution may minimize conflict in the project manager's interfaces with the functional organization but could increase conflict if used within the project organization itself (12: 5-6). Smoothing is an attempt to deemphasize conflict and stress harmonious relations. Compromise is exemplified by bargaining and a solution satisfactory to all parties. This may result in a workable but suboptimal solution. Forcing is directly opposite to compromise. This is a win-or-lose strategy and does not result in a mutually agreeable solution to the parties involved. Confrontation involves facing the problem and using a problem solving technique (2:169). Thamhain and Wilemon, based on their research, concluded that project managers rely strongly on compromise, smoothing, and confrontation in dealing with conflict within the project team. However, compromise is the preferred method of conflict resolution between the project manager and his superior (12:5).

Hellriegel and Slocum identified five conflict handling styles: the competitive style, the collaborative

style, the sharing style, the avoidance style, and the accommodation style (5:130). As shown in Figure 4, there is a degree of similarity between these five conflict handling styles and the five modes of conflict resolution defined by Blake and Mouton (2:169).

The _competitive_ style is represented by a desire to satisfy one's goals, even at the expense of others. The individual using this style looks on the situation as a win-or-lose proposition. He is not willing to settle for second best and will attempt to dominate or coerce others to accomplish his objectives (5:132).

The _collaborative_ style is exemplified by the desire to satisfy the individual's goals and the goals of others involved in a conflict situation. It has been labeled as a problem solving or confrontation style. The user of this style tries to integrate the interests of other individuals. Common elements of the collaborative style are the sharing of information and attitudes, the development of empathy, the willingness to try and find an alternative that is agreeable to all parties, and the willingness to expend large amounts of energy in extensive discussions. The collaborative style is the opposite of the competitive style (5:132-133).

The _sharing_ style emphasizes a process of compromise, bargaining, or negotiation. Individuals have the feeling of being moderately satisfied, but not completely
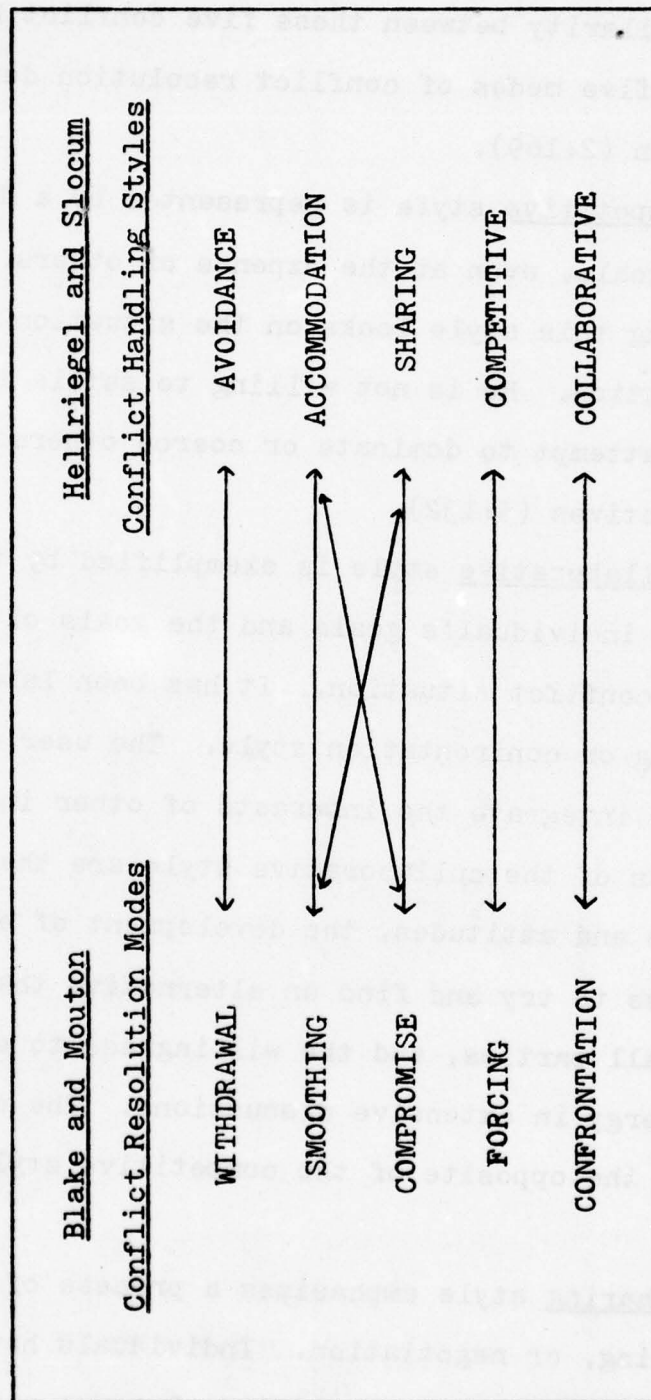
Fig. 4. Comparison Between Conflict Resolution Modes and Conflict Handling Styles.

happy with the solution attained by this style. "Splitting the difference" in negotiations is an example of use of the sharing style. Sharing does not necessarily mean an even split. The sharing style can be useful when individuals have the ability to impede as well as help each other in attaining goals. That is, by working together, both parties accomplish more than the individual working alone (5:133).

The avoidance style is a process of withdrawing from conflict situations. The situation is suppressed or postponed and the individual's perceived unpleasantness of the situation is avoided. A subtle form of the avoidance style is the making of decisions that are acceptable to others even if the decisions are not the individual's first choice (5:134).

The accommodation style focuses on appeasement and the desire to satisfy the goals of others, while disregarding one's own goals. The accommodation style is likely to be used by the individual who is dependent and submissive. The user is likely to feel that his relationship with others will be terminated if he does not satisfy their goals. The accommodation style may be useful as a starting style in certain situations. A manager dealing with a highly emotional employee may want to start out using the accommodation style to get the situation stabilized, then change to another style to resolve the conflict (5:135).

Hellriegel and Slocum concluded that conflict handling styles are a characteristic of the individual and the situation and that no single style can be utilized successfully in all situations. Certain contingencies are present that affect the selection of a given style (5:135). Some contingencies are the motive of the individual and the situation, perceptions as to the size of the conflict situation, and the way the organization rewards or punishes its employees. Hellriegel and Slocum indicate a person is more likely to use a competitive style when relations are hostile and there is a tendency to use the collaborative style when relations are open and friendly. If the conflict situation is perceived to be "large" (indicating the amount at stake), the competitive style is likely to be used rather than one of the other styles. The reward/punishment system of the organization has the effect of encouraging the competitive style if the organization does any of the following: (1) ranks its employees in relation to each other; (2) attempts to place blame on individuals for errors or problems; or (3) rewards individual effort rather than or in conjunction with group effort (5:130).

The implication from the research is that there is no best method of conflict resolution for the project manager when dealing with (1) conflict within the project organization, (2) interfaces with functional support, or (3) conflict

with his superior. The project manager should analyze each conflict situation and devise his own strategies for the solution.

The preceeding information concerning project management, conflict situations, and resolution methods dealt strictly with project management in a non-DOD environment. One intent of this research effort was to determine if these variables, conflict situations and modes of resolution, are characteristic of the DOD project management environment. Accordingly, and as an output of the research, project managers have provided their specific conflict resolution strategies as well as their perspective of conflict situations associated with projects.

Chapter III

METHODOLOGY

Overview

This research examined conflict resolution strate-
gies of project managers. Information was obtained through
personal discussions with project managers and observation
of their behavior in the conduct of their project tasks. A
group of managers assigned responsibility for conducting
conceptual studies for future weapon systems acquisition and
development were selected as the information source because
the project teams were small, facilitating observation; a
relatively large number of such teams were available for
study; and only a single phase (conceptual) of the weapon
system acquisition process was involved. Information ob-
tained was content analyzed to identify conflict situations
and those conflict resolution strategies commonly employed.

Data Source

The mission of the Aeronautical Systems Division,
Deputy for Development Planning (ASD/XR), is to establish
the technical military programs; provide new aeronautical
systems concepts that will satisfy Air Force aeronautical
systems needs; provide a planning interface with the aero-
nautical systems technological base; and to support

aeronautical system programs already approved for development. The mission entails such activities as assessing future requirements, determining objectives, developing alternate courses of action, and providing rationale for decision makers. ASD/XR serves as the focal point for ASD evaluation of laboratory programs, required operational capabilities, and unsolicited proposals (4).

ASD/XR is divided into eight directorates. They are Tactical Planning, Strategic Planning, Airlift Planning, Support Planning, Directed Energy Planning, Conceptual Systems Design, Conceptual Subsystems Design, and Advanced Systems Analysis. The authorized manning of ASD/XR is 136 personnel of which approximately 70 perform as project managers.

To accomplish its mission, ASD/XR uses project organization extensively in conceptual study tasks and other development planning undertakings. As a result, there are numerous projects in different stages of conceptual development at all times. Some studies are done in-house; extensively using government personnel and expertise, while other studies are conducted using civilian research facilities outside of the DOD. The contracted studies are managed, coordinated, and evaluated by the XR project manager.

The projects managed by ASD/XR project managers were selected as the setting for potential conflict because they were large in number and involved a variety of subjects and

conceptual systems. At the same time, the variable, phase of project life, identified by Thamhain and Wilemon was essentially held constant. ASD/XR interfaces with many agencies as depicted in Figure 5. Projects are important as evidenced by the receipt of direction, at times conflicting, from the Air Force Systems Command, Aeronautical Systems Division, and on occasion, directly from the Air Staff. Futhermore, the ASD/XR project manager is dependent upon functionally structured organizations within and outside ASD/XR for technical support. These interfaces have a potential for conflict because of varied interpretations and conflicting priorities of the projects.

Variables

Two variables, conflict situations and conflict resolution strategy, were measured at the nominal data level. The following explanation and Table 2 provide definitions and examples of the variables.

Conflict situations occur when two or more individuals are in competition or opposition. An example of a conflict situation involving competition is two project managers who are simultaneously attempting to acquire the technical expertise of the same engineer. Other examples could be provided simply by substituting other resources in the statement for the technical expertise of the engineer.

Conflict resolution strategies are specific methods used by project managers to resolve conflict. Resolving
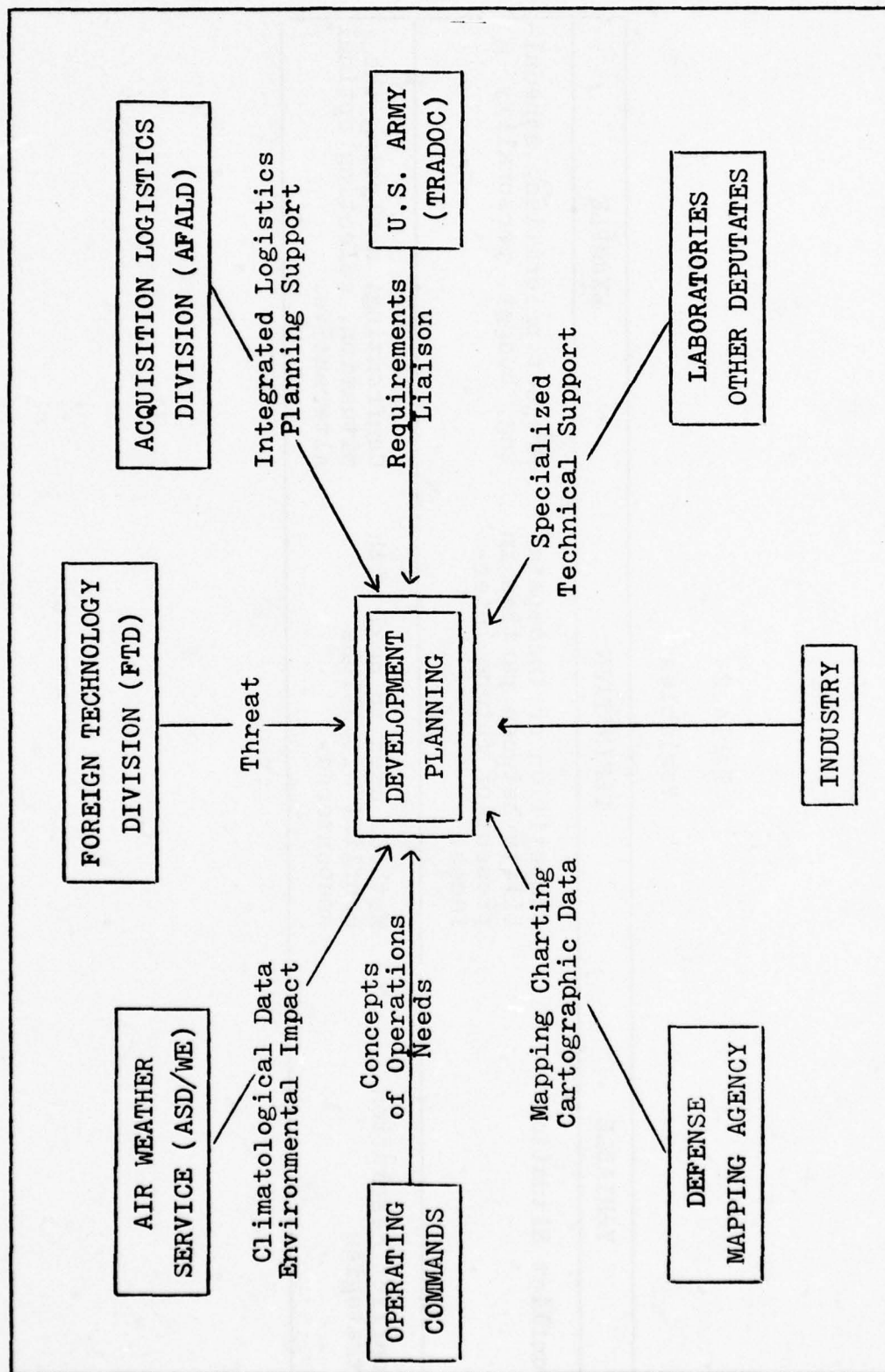
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Fig. 5. Development Planning Interfaces. (Development Planning, ASD/XR. "Division Advisory Group General Meeting." Unpublished report, January 20-21, 1977.)

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Table 2

Variables

VARIABLE	DEFINITION	EXAMPLE
Conflict Situation	Competition or incompatability between parties in present or future interfaces.	Project priorities, scheduling, budget, personality
Conflict Resolution Strategies	Methods used to deal with conflict situations encountered.	Confronting, analyzing the situation, selecting optimal alternative.

conflict does not require the elimination of conflict. A conflict can be resolved when it has been treated so that it does not adversely affect the project task. This research identifies common conflict resolution strategies used by the project manager in a particular conflict situation.

Sampling Technique

A preliminary discussion was conducted with the Deputy for Development Planning. The meeting was designed to elicit support and approval for the research. The results of the discussion were support for the research, approval for the research, and the appointment of a liaison.

The ASD/XR Technical Advisor, who was the liaison for the research, identified and introduced the heads of the directorates. These directorate heads selected project managers within their directorates who they felt were available and suitable candidates for discussion (e.g., project managers working on tasks that were generating a high degree of conflict or had previous experience with projects having numerous conflict situations).

It was not possible to talk to all of the project managers at ASD/XR because of the following constraints: workload of the organization, time available for the research, and workload of the researchers. Therefore, the population of ASD/XR project managers was sampled within the constraints imposed. The final data producing sample consisted of 22 project managers.

Data Collection

The data collection technique consisted of preliminary discussions and follow-up validation of the information obtained. Discussions were preferred to the use of a survey for the following reasons: (1) all of the variables were not known, (2) discussions are more comprehensive, and (3) discussions allow for two-way communication. Prior to preliminary discussions, a letter (shown in Appendix A) was sent to the selected project managers outlining the objective of the research effort.

Preliminary discussions were conducted with 22 project managers of different experience levels and assigned to a variety of tasks. The sample consisted of three captains, four lieutenant colonels, one GS-13, 12 GS-14's, and two GS-15's. The experience level ranged from one year to twenty-five years with a mean of 6.6 years. The discussions were designed to stimulate candid conversation about the subject's personal conflict resolution strategies used in specific conflict situations.

A tape recorder was used in all but two of the discussions. Recording was extremely valuable for several reasons. One, the discussions were not structured and information was not easily recorded by taking notes. Two, the recorder allowed the researchers to devote more attention to the discussion. Three, the recorder was a means to review

the discussions and compare information obtained in later
discussions. Both researchers were present for all dis-
cussions and took individual notes to highlight key areas
for use when reviewing the tapes. A discussion guide was
used to assist the researchers in their data collection (see
Appendix B).

The validation device was developed after the data
gathered was content analyzed. The purpose of the valida-
tion device was to determine if the researchers had
correctly captured the conflict atmosphere of ASD/XR.

Content Analysis

The data gathered was placed in homogenous groups to
facilitate content analysis,

> . . . a method of studying and analyzing communi-
> cations in a systematic, objective, and quantita-
> tive manner to measure variables and . . . it has
> been used to determine the relative emphasis or
> frequency of various communications: propaganda,
> trends, styles, changes in content, readability
> [7:525].

The initial step in the process of content analysis
was an attempt to use the conflict situations identified by
Thamhain and Wilemon (11:3-4) and the conflict handling
styles defined by Hellriegel and Slocum (5:132-133) to group
the data. It became readily apparent that although the con-
flict situations found at ASD/XR were similar to those of
Thamhain and Wilemon (11:3-4), the conflict resolution stra-
tegies employed in ASD/XR did not closely correspond to the
conflict handling styles of Slocum and Hellriegel (5:132-133)

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or the conflict resolution modes of Blake and Mouton
(2:169). The individual situations discussed in ASD/XR in
many cases could be placed into more than one of the con-
flict situations previously defined by Thamhain and Wilemon
(11:3-4). In other cases the new situations did not
smoothly fit any of their categories as defined.

The studies conducted by Thamhain and Wilemon (11)
and Slocum and Hellriegel (5) were of a broad nature, cover-
ing a wider spectrum of projects and project management,
whereas this research was conducted using a specific organi-
zation as a data base. Consequently, the information
obtained at ASD/XR was situation-sensitive to the organiza-
tion and its specific mission.

The next step in the content analysis was to list
each individual situation and strategy obtained from the
discussions. There were 68 data points, each data point
consisted of a situation and a resolution strategy. The data
points were reviewed to group similar situations and to group
similar strategies. Each group of similar situations was
analyzed to determine the major points of commonality or
similarity in order to facilitate verbally describing the
group. The same process was used to determine what termin-
ology would best describe each of the groups of strategies.
The analysis indicated that five situations and five strate-
gies were found to be present at ASD/XR. The new situations

and strategies were then compared to what Thamhain and Wilemon and Slocum and Hellriegel had described in their studies. The similarities and differences that were noted are described in Chapter IV. A five-by-five matrix (Table 3) was constructed to determine the number of times a conflict resolution strategy was used for a specific conflict situation. The frequency of use of a strategy for a conflict situation is placed at the intersection of the conflict situation (row) and the conflict resolution strategy (column). The total number of occurrences of a conflict situation was obtained by summing the cells in the row corresponding to that situation. The total number of times a strategy was used was obtained by summing the cells in the column representing that strategy. As stated before, each cell, representing the intersection of a situation and strategy, indicated the frequency of use of a particular strategy in a particular situation. The percentage of time a strategy was used for a specific situation was obtained by dividing the appropriate cell frequency by the number of times the situation occurred. The percentage of time a strategy was used in all cases was obtained by dividing the sum of the cells in the column corresponding to the strategy by the total number of situation/strategy combinations.

Validation Technique

The method used to determine if the situations and strategies in the matrix accurately depicted what really

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Table 3

Frequency Matrix

SITUATIONS \ STRATEGIES	Cooperating	Reordering	Transferring	Persuading	Accepting	TOTAL
Administrative						
Commitment						
Overload						
Personal						
Technical						
TOTAL						

happens in ASD/XR was to prepare a validation device to measure how well the same project manager recognized the results of the discussions. The validation device was given to 12 of the 22 project managers who participated in the discussions. The 12 project managers who were selected were those physically present whose workload permitted the additional participation.

The project managers were given the list of conflict situations and strategies with a definition of each. They were asked to indicate how well the conflict resolution

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strategy definitions described how they would attempt to resolve the conflict situations given. A scale was provided for them to respond to the questions. The three possible responses were "exact," "to some degree," or "not at all" (see Appendix C). If a project manager placed the strategy in the "exactly" or the "to some degree" blocks, the strategy was considered to be used in that situation by the project manager. Each manager was asked not to respond to a question if he thought the situation was not appropriate or he personally had not encountered the situation.

The results of the validation device were compared to the individual discussions to see if individual project managers indicated the same relationship between strategies and situations in both the discussions and the validation device. The comparisons of each project manager's response in the discussions and validation device were totaled. A correct response is a project manager indicating the same situation/strategy combination on the validation device as he indicated during the discussions. The number of correct responses was divided by the number of total possible correct responses to compute the overall accuracy of the discussions. The information obtained from the discussions was considered to have been validly categorized and described if project managers identified, through the validation device, the same situation/strategy combinations at least 75 percent of the time.

Chapter IV

RESULTS AND ANALYSIS

In this chapter, the five conflict situations and
five conflict resolution strategies identified through con-
tent analysis of the research data are described and examples
of each are provided to facilitate understanding. Further,
the strategies and situations, as used in ASD/XR, are
matched to show their relationships. Finally, the results
of the effort to validate the information derived from the
research is presented.

Conflict Situations

Based on content analysis of discussion data, the
following five conflict situations were identified: (1)
conflict over administrative procedures, (2) conflict over
project commitment, (3) conflict over overload, (4) conflict
over technical opinions, and (5) personal conflict.

Conflict over administrative procedures as described
by Thamhain and Wilemon:

> A number of managerial and administrative-
> oriented conflicts may develop over how the project
> will be managed; i.e., the definition of the project
> manager's reporting relationships, definition of
> responsibilities, interface relationships, project
> scope, operational requirements, plan of execution,
> negotiated work agreements with other groups, and
> procedures for administrative support [11:3-4],

is a situation found in ASD/XR. This conflict situation may

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occur when correspondence must follow restrictive channels before leaving the organization. Such a constraint may cause the project manager to make a decision to either submit the correspondence early or his having to "hand carry" it through to ensure timely arrival. Another example of this situation is the lack of administrative personnel which results in the project manager utilizing his time to accomplish tasks not directly related to his project.

Conflict over project commitment was found to be similar to what Thamhain and Wilemon described as conflict over manpower resources, which is,

> Conflicts may arise around the staffing of the project team with personnel from other functional and staff support areas or from the desire to use another department's personnel for project support even though the personnel remain under the authority of their functional or staff superiors [11:3-4].

Conflict over project commitment also includes the acquisition of other resources such as technical information and motivating the personnel assigned to give their best effort to the project. Example situations are where several project managers are attempting to acquire a particular individual with the desired technical expertise or where a project manager is attempting to acquire information concerning a weapon from a System Program Office.

Conflict caused by overload occurs when the project manager is assigned too many projects or study tasks. Overload may also be a result of being assigned tasks unrelated to the project or the project manager's perception that he

has too much to accomplish in relation to the time given to accomplish the task. The project manager, when confronted with this situation, must decide which tasks are the most important, because he feels he does not have enough time to effectively accomplish all of the tasks he is assigned. Several project managers indicated that in addition to their own project, they were required to serve as a member of another project team. Overload may also occur when schedules are accelerated during the course of the project, which necessitates the project manager deciding to either sub-optimize the results of his project or attempting to keep the schedule from being accelerated. The conflict situations over scheduling and priorities as described by Thamhain and Wilemon may be a subset of what is here described as conflict caused by overload.

Personal conflict is described as intrapersonal disagreements concerning moral or ethical issues as well as interpersonal disagreements with members of the project team or users of the project findings. Intrapersonal conflict may arise when a project manager is assigned a project task that he does not believe in or feels is not of value. Another example of intrapersonal conflict is when a project manager feels a project is important. He may then be forced to elect to either minimize the negative aspects and maximize the positive aspects when documenting his results, to ensure support for his project or be as objective as possible and

risk losing support for his project. Interpersonal conflict
may arise when the project results are guided toward a pre-
determined goal and the project manager must decide to
either accept these predetermined goals or conduct the study
in an objective manner. While the personality conflict
identified by Thamhain and Wilemon deals specifically with
ego centered or interpersonal conflicts, this research
revealed another dimension involving intrapersonal conflict,
internal to the project manager. The manner in which the
project managers described this conflict situation during
the discussions indicated to the researchers that personal
conflict was perceived to be intense.

Conflict over technical opinions and performance
tradeoffs described by Thamhain and Wilemon as

In technological-oriented projects disagreements
may arise over technical issues, performance
specifications, technical tradeoffs, and the
means to achieve technical performance [11:3-4],

was found to exist in ASD/XR. As stated previously, ASD/XR
deals extensively with conceptual studies involving long-
range planning and is not normally associated with a
specific piece of hardware; therefore, there may be a wide
range of technical opinions from which the project manager
must choose. The process of selecting the "best" opinion is
a source of conflict for the project manager.

Thamhain and Wilemon indicated that conflict over
costs was a conflict situation. This situation was not
evident in ASD/XR. Although some of the study projects are

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contracted out to non-DOD organizations, the amount of money
appropriated for these studies is firmly established. There
were cost related conflict situations identified in the dis-
cussions but the researchers felt they were of an adminis-
trative nature and were classified as such.

Conflict Resolution
Strategies

The five conflict resolution strategies found in
ASD/XR were (1) cooperating, (2) reordering, (3) transfer-
ring, (4) persuading, and (5) accepting.

Cooperating is a group effort to resolve conflict by
using a problem solving and/or negotiating technique. The
group may consist of the project manager and his supervisor,
or the group manager and individuals external to the project
who have a vested interest in the project, such as potential
users and sources of information. Cooperating incorporates
the conflict handling styles of sharing and collaborating
identified by Slocum and Hellriegel. When a project manager
attempts to resolve conflict through the use of group deci-
sion making or negotiating differences, he is employing the
strategy of cooperating. The project manager is willing to
accept the group's decision or concede some issues in order
to resolve or prevent the conflict situation.

Accepting is used when the project manager believes
the resolution of a conflict is beyond his capability. Then
he may resign himself to live with the conflict situation.

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Accepting is typified by a situation such as monetary constraints imposed by higher authority and the feeling by the project manager to "accept the fact and press on." This strategy was not identified by Slocum and Hellriegel as a conflict handling style nor is it similar to any of the conflict handling styles they identified.

A project manager using persuading as a resolution strategy is attempting, at a personal level, to "sell" his project and create a favorable atmosphere for his project through logical reasoning. In an attempt to obtain commitment of resources for his project, the project manager may perceive that personal contact or interaction may be more effective than using established formal procedures. Persuading was not specifically identified by Slocum and Hellriegel or Blake and Mouton nor does it closely correspond to any of their conflict handling styles or resolution modes.

Transferring is a strategy used to pass the conflict to another individual or group of individuals; and it is similar to avoidance, a conflict handling style, except transferring implies an effort to resolve rather than complete avoidance of the conflict. The project manager may feel someone else, because of that person's position, expertise, or influence, may be able to resolve the conflict. A project manager that resolves a conflict situation, such as a difference in technical opinion, by not dwelling on the conflict situation, but rather by asking a previously

uninvolved party to handle the situation, is using trans-
ferring.

Reordering is a change in the project manager's
personal, internal prioritization or a tradeoff that deter-
mines the relative importance of project tasks. Reordering
implies the project manager is dealing with a conflict
situation that is internal to him. A project manager tasked
with too many projects or numerous tasks that are unrelated
to the project may employ reordering by making a decision to
spend more time or resources on one project at the expense
of another. Reordering is not similar to any of Slocum and
Hellriegel's conflict handling styles or Blake and Mouton's
conflict resolution modes.

Validation

As explained in Chapter III, the validation device
was administered to 12 of the 22 project managers serving as
a data base in the discussions. The resolution strategies
associated with particular situations identified by a project
manager in the discussions were compared to the strategies
he indicated as responses to the corresponding situations in
the validation device. Total correct comparisons by subjects
for each situation/strategy combination were then divided by
total possible situation/strategy comparisons to arrive at an
overall measure of accuracy.

There were 38 possible situation/strategy combina-
tions that could be matched. Of these, 32 were correctly

identified in the validation device for an approximate
84 percent overall accuracy measure. There are three possi-
ble reasons for the six incorrectly matched situation/
strategy combinations. The first reason is the project
manager may have been influenced by a particular set of
circumstances at the time of the discussions and at the time
the validation device was administered, a different set of
circumstances could have been influencing his response. The
second reason could have been the project manager, when
given a list of conflict resolution strategies, selected a
strategy that he preferred but either he was not aware of it
or had not thought of it during the discussions. The third
reason could have been incorrect interpretation of the pro-
ject manager's response during the discussions. There was no
apparent relationship among the six incorrectly matched
situation/strategy combinations. Appendix D displays the
results of the comparison between the discussions and valida-
tion device. The researchers feel the situations and stra-
tegies obtained from the discussions are generally valid
based on the 75 percent or greater criteria explained in
Chapter III. The analysis of the relationships between con-
flict resolution strategies and the conflict situations with
which they were used, as determined by the discussions, are
contained in the following sections.

Analysis of Situations

Conflict over administrative procedures was identi-
fied 18 times in the discussions with the project managers
in ASD/XR, thus ranking it as the second most frequently
occurring conflict situation. Project managers preferred
using the resolution strategy of cooperating to resolve con-
flict over administrative procedures using the strategy
approximately 44 percent of the time (see Table 4). The
strategy of accepting was used approximately one-third of
the time by the project managers to resolve conflict over
administrative procedures. The strategies of persuading and
transferring were also used to resolve this conflict situa-
tion but less frequently. The results indicate that a major-
ity of the project managers felt a problem solving technique
could be used to resolve conflict over administrative proced-
ures, and only about one-third felt there was nothing that
could be done to resolve this conflict situation.

Conflict over project commitment was identified 17
times during the discussions, ranking it as the third most
frequently occurring conflict situation. Project managers
indicated that the strategy of persuading was the most popu-
lar to obtain commitment for their project (see Table 5).
However, cooperating was used approximately one-third of the
time for this situation. The strategies of reordering, trans-
ferring, and accepting were used an equal but lesser percent-
age of the time.

Table 4

Conflict Over Administrative Procedures

	Frequency of Use		Percentage
	Overall	This Situation	
ACCEPTING	12	6	33.3% / 50%
COOPERATING	32	8	44.4% / 25%
PERSUADING	12	3	16.7% / 25%
REORDERING	5	0	
TRANSFERRING	7	1	5.5% / 14.3%
Total Number of Occurrences	68	18	

KEY: ▢ Use of this strategy to resolve the conflict situation. Computed by dividing the number of times the strategy was used in the situation by the number of occurrences of the situation.

[‾] Use of this strategy to resolve the conflict in this situation as compared to the same strategy used in all situations. Computed by dividing the number of times the strategy was used in the situation by the number of times the strategy was used overall.

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Table 5

Conflict Over Project Commitment

Resolution Strategy	Frequency of Use		Percentage
	Overall	This Situation	
ACCEPTING	12	1	5.9% [8.3%]
COOPERATING	32	5	29.4% [15.6%]
PERSUADING	12	9	52.9% [75%]
REORDERING	5	1	5.9% [20%]
TRANSFERRING	7	1	5.9% [14.3%]
Total Number of Occurrences	68	17	

KEY: ⬚ Use of this strategy to resolve the conflict situation. Computed by dividing the number of times the strategy was used in the situation by the number of occurrences of the situation.

[ ] Use of this strategy to resolve the conflict in this situation as compared to the same strategy used in all situations. Computed by dividing the number of times the strategy was used in the situation by the number of times the strategy was used overall.

A technique used in employing the strategy of persuading is an attempt to "sell" the project to an individual through persistant personal contact. Some of the project managers indicated the personal approach was an extremely powerful tool to acquire project commitment.

The strategy of cooperating, when used to resolve conflict over project commitment, was apparently effective because project managers were willing to compromise or negotiate to receive partial support for their project if they could not get all they had initially requested.

Conflict caused by overload was identified six times during the discussions. There were three conflict resolution strategies employed an equal number of times to resolve conflict caused by overload (see Table 6). Cooperating, reordering, and accepting were each used for two of the six occurrences. Keeping in mind the relatively few occurrences of this situation, it is interesting to note the use of two seemingly opposite strategies. Cooperating, a problem solving technique, contrasted with accepting, a feeling by the project manager of no alternative. The strategy of reordering indicates that project managers, confronted by an overload situation, assign a priority or some other ranking to determine the order of accomplishment and the level of effort to be allotted to each task.

There were five occurrences of personal conflict identified by project managers in the discussions. Project

Table 6

Conflict Caused by Overload

Resolution Strategy	Frequency of Use		Percentage
	Overall	This Situation	
ACCEPTING	12	2	33.3% [16.7%]
COOPERATING	32	2	33.3% [6.3%]
PERSUADING	12	0	
REORDERING	5	2	33.3% [40%]
TRANSFERRING	7	0	
Total Number of Occurrences	68	6	

KEY: ☐ Use of this strategy to resolve the conflict situation. Computed by dividing the number of times the strategy was used in the situation by the number of occurrences of the situation.

[¯] Use of this strategy to resolve the conflict in this situation as compared to the same strategy used in all situations. Computed by dividing the number of times the strategy was used in the situation by the number of times the strategy was used overall

managers indicated cooperating was the preferred strategy to resolve personal conflict. Cooperating was identified in three of the five occurrences or 60 percent of the time to resolve personal conflict (see Table 7). The conflict resolution strategy of reordering was employed in two of the five occurrences of personal conflict or 40 percent of the time. In this and in the case with conflict caused by overload, the relatively few occurrences limited the strength of any conclusions that may be drawn.

Conflict over technical opinions was the most frequently identified conflict situation in the discussions, with 22 occurrences. As indicated earlier, the projects and study tasks accomplished in ASD/XR are complex in nature; therefore, it is understandable why this conflict situation was the most frequently identified. Project managers used three conflict resolution strategies for this situation: cooperating, transferring, and accepting (see Table 8). Cooperating, identified approximately two-thirds of the time, was the most preferred strategy, possibly because of the necessity to preclude alienating personnel who must be relied upon continually for their technical expertise for present and future projects. Transferring, identified approximately one-fourth of the time, as well as accepting, identified approximately 13 percent of the time, although used less frequently, were attempts to avoid direct confrontation. Project managers, when using transferring, passed the conflict

Table 7

Personal Conflict

Resolution Strategy	Frequency of Use		Percentage
	Overall	This Situation	
ACCEPTING	12	0	
COOPERATING	32	3	60% / 9.4%
PERSUADING	12	0	
REORDERING	5	2	40% / 40%
TRANSFERRING	7	0	
Total Number of Occurrences	68	5	

KEY: ☐ Use of this strategy to resolve the conflict situation. Computed by dividing the number of times the strategy was used in the situation by the number of occurrences of the situation.

⌐ ¬ Use of this strategy to resolve the conflict in this situation as compared to the same strategy used in all situations. Computed by dividing the number of times the strategy was used in the situation by the number of times the strategy was used overall.

Table 8

Conflict Over Technical Opinions

Resolution Strategy	Frequency of Use		Percentage
	Overall	This Situation	
ACCEPTING	12	3	[13.6%] [25%]
COOPERATING	32	14	[63.6%] [43.8%]
PERSUADING	12	0	
REORDERING	5	0	
TRANSFERRING	7	5	[22.7%] [71.4%]
Total Number of Occurrences	68	22	

KEY:
[☐] Use of this strategy to resolve the conflict situation. Computed by dividing the number of times the strategy was used in the situation by the number of occurrences of the situation.

[⌐ ⌐] Use of this strategy to resolve the conflict in this situation as compared to the same strategy used in all situations. Computed by dividing the number of times the strategy was used in the situation by the number of times the strategy was used overall.

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situation to a higher authority for resolution. Accepting was used to downplay the conflict situation, anticipating the parties involved would reach an agreeable solution without intervention by the project manager.

A matrix (Table 9) was used to display the frequency of use of each specific conflict resolution strategy for each specific conflict situation. It facilitated the computation of the percentages mentioned in the preceding paragraphs as well as those that will be presented in the following section.

Table 9

Frequency Matrix

STRATEGIES / SITUATIONS	Cooperating	Reordering	Transferring	Persuading	Accepting	TOTAL
Administrative	8	0	1	3	6	18
Commitment	5	1	1	9	1	17
Overload	2	2	0	0	2	6
Personal	3	2	0	0	0	5
Technical	14	0	5	0	3	22
TOTAL	32	5	7	12	12	68

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Frequency of
Strategy Use

Table 10 displays the relative use of conflict resolution strategies. The most frequently or commonly used conflict resolution strategy was cooperating. Project managers used the strategy of cooperating approximately one-half of the time. Persuading and accepting were each used 18 percent of the time to resolve conflict. Transferring and reordering were the least used strategies with transferring being used 10 percent of the time, while reordering was only used 7 percent of the time.

Table 10

Overall Frequency of Strategy Use

Resolution Strategy	Frequency of Use	Percentage
COOPERATING	32	47.1%
PERSUADING	12	17.6%
ACCEPTING	12	17.6%
TRANSFERRING	7	10.3%
REORDERING	5	7.4%
Total Situations	68	

Several project managers indicated the need for a cooperative atmosphere within ASD/XR, as well as the importance of a good working relationship with external

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organizations on which they rely for support. Project managers in such an organization may be expected to continually rely on the same individuals to support their projects or study tasks.

Project managers used the conflict resolution strategy of persuading most frequently to resolve conflict over project commitment. Several project managers indicated the effectiveness of persuading was increased when used with persistence. Persuasion, with emphasis on persistence, was used to gain the support of both an individual needed for the project and the individual's supervisor who has the authority to assign the individual.

The conflict resolution strategy of accepting was used by the project managers when they believed that no viable alternatives were available to resolve the conflict. The project manager may feel that attempts to resolve the conflict situation may intensify the conflict or there is nothing to be gained by attempts to resolve it.

Additional Findings

The analysis of the data revealed additional information concerning the effect of conflict on the project task and the role of communication in conflict and conflict resolution.

The responses obtained in the discussions and the validation device support the conclusion that the project managers in ASD/XR feel effective resolution of the conflict

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is an important consideration in the accomplishment of their projects or study tasks. Project managers felt the resolution of conflict was an integral part of their project task and in the opinion of the researchers, the project managers felt they were relatively successful in their attempts to resolve conflict.

The researchers believe the organizational climate at ASD/XR is supportive with free flow of information. The communications process appeared to be generally effective; however, certain problems did exist. One problem indicated by a project manager concerned individuals who thought they had different opinions. The project manager stated, " . . . if only they would listen to one another, they would realize they are saying the same thing." Another problem was caused by the inability of some team members to express themselves in written communication, which resulted in the project manager either asking the individual to reaccomplish the report or the project manager reaccomplishing it himself.

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Chapter V

DISCUSSION AND RECOMMENDATIONS

Discussion

There are some important points that should be mentioned with regard to the information developed from the research. In the process of grouping similar expressions from the discussions, judgment was required to categorize the data. Even though a validation check was accomplished with a favorable result, it is possible the data obtained in the discussions, classified as a particular conflict situation or conflict resolution strategy, could have been interpreted differently. The application of the results of this research effort to any organization other than ASD/XR should be made with caution.

The results of this research in no way contradict or refute the findings of researchers mentioned in the literature review nor are their results in opposition to findings in this research effort. The researchers believe the findings obtained in this effort are of value and may be applicable to other organizations for two reasons. First, the data for this research was gathered using a micro approach that involved detailed, time consuming discussions with project managers to ensure as much accuracy as possible. The research was open ended in that the data was not forced into

preconceived groups or categories such as the case when a questionnaire is used. Once gathered, an extensive, labor intensive data reduction process was performed to obtain the information presented. Second, a validation check was accomplished and reflected a high degree of correlation between the information obtained in the discussions and the information obtained from the validation device.

Both this research and that identified in the literature review conclude there is no best way or strategy to resolve conflict. The majority of the project managers indicated they evaluate each situation prior to selecting a resolution strategy. Each conflict situation is complex and each element which constitutes the entire situation should be thoroughly analyzed before employing a conflict resolution strategy. A project manager may use different conflict resolution strategies for the same conflict situation if he perceives there are slight differences in the elements that makeup the conflict situation. A multi-strategy, or contingency approach, may be more effective when used for certain situations such as when the project manager believes there are aspects of the situation of which he is unaware. Further, several project managers stated that at times it was necessary for them to use a fallback strategy because they felt the first strategy they used was not working to resolve the conflict. The project managers also indicated the decision to

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use a fallback strategy should not be delayed longer than necessary or the conflict situation may intensify.

Cooperating was the most frequently used conflict resolution strategy in ASD/XR. This may be a result of two factors: (1) the need to maintain good working relationships, and (2) the overall experience level of the project managers. Several project managers indicated the organizational climate within ASD/XR was more cooperative in nature than that of the organizations with which they were previously involved.

Conclusions can be drawn concerning the role of communication in conflict resolution. Specifically, there is a great deal of personal and group interaction throughout the life of a project or study task. Therefore, it appears that good communication could prevent or minimize some conflict situations.

Recommendations

The value of this research lies in its descriptive nature of the conflict situations and conflict resolution strategies that could be identified with a particular group of project managers engaged in varied projects all in the same general stage of project life cycle. It was evident that new project managers learn conflict resolution on a doing and observing basis. It is possible that an information source, such as this research, could assist project managers in dealing with conflict within their groups.

Areas of recommended study are the effect of conflict
on project or study task performance, frequency of occurrence
of conflict situations, and the effectiveness of each con-
flict resolution strategy. The results of the recommended
studies may be of use in developing a training program for
project managers.

The development of a questionnaire from the valida-
tion device may be the most important area of further
research. The validation device, originally conceived to be
of use only for this research effort, has the potential to be
developed into a questionnaire, because of the apparent
accuracy of the validation device in portraying the conflict
atmosphere in ASD/XR. The discussions used to obtain data
for this research, although allowing in-depth study, were very
time consuming. The use of a questionnaire could reduce the
time to acquire data with approximately the same degree of
accuracy. Appendix F contains a revised version of the vali-
dation device used in this research. The revised validation
device could be used as a baseline for developing such a
questionnaire.

APPENDIX A

Memorandum to Project Managers, ASD/XR

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY (AU)
WRIGHT-PATTERSON AIR FORCE BASE. OHIO 45433

REPLY TO
ATTN OF: Captains James W. Goodart and David L. Thomas

SUBJECT: Forthcoming Discussions

TO: Project Managers, ASD/XR

1. We are graduate students in the School of Systems and Logistics, Air Force Institute of Technology. We are conducting research in the area of conflict resolution strategies used by project managers. Colonel Horne has approved our proposal to use ASD/XR as our data source. We would greatly appreciate your assistance in this research effort.

2. We would like to discuss how you solve problems concerning project priorities, administrative procedures, personality conflicts, resource constraints, technical difficulties, and performance difficulties. We will contact you in late April or early May to set up an appointment for the discussion.

3. If you will think about the above problems and make some notes on your personal experience and techniques, the discussion time can be more productive and kept to a minimum.

James W. Goodart
Captain, USAF

David L. Thomas
Captain, USAF

Strength Through Knowledge

APPENDIX B

Discussion Guide

DISCUSSION GUIDE

Introduction

We are Captains Dave Thomas and Jim Goodart. We are graduate students attending the School of Systems and Logistics, Air Force Institute of Technology, Wright-Patterson Air Force Base. We are working on a research effort dealing with conflict resolution strategies used by project managers. We would like to discuss your experience with conflict as a project manager.

Discussion Guide

1. Record name

2. Record office identification

3. Did you receive the summary we distributed to your office outlining our research objective?

4. If answer to No. 3 is "yes," proceed to No. 5. If answer to No. 3 is "no," outline research objectives.

5. What projects are you working on?

6. How much experience have you had as a project manager?

7. What effect does conflict have on your project? Would you say it has a great, moderate, or no effect?

8. What are some of the conflicts you have had and how did you handle the situation?

9. Other questions that the discussion dictates.

APPENDIX C

Validation Device

Below is a list of five conflict situations that we identified in our research effort. Please read the situation and respond to the question using the five conflict resolution strategies we have given you. Insert the letter corresponding to a particular resolution strategy in the block which best matches your feelings of the resolution strategy.

1. <u>Conflict Over Administrative Procedures</u>. A number of managerial and administrative-oriented conflicts may develop over how the project will be managed and general organizational policies and procedures. Some examples are constraints imposed (one year money), project direction or scope, and procedures for administrative support, such as cost analysis and program control.

HOW WELL DO THE CONFLICT RESOLUTION STRATEGIES IDENTIFIED DESCRIBE HOW YOU HANDLE THIS SITUATION?

NOT AT ALL	TO SOME DEGREE	EXACTLY

2. <u>Conflict Over Project Commitment</u>. Conflicts may arise when attempting to acquire support for the project from another organization either in the form of personnel or other needed resources. This may involve getting the individual's best effort once acquired.

HOW WELL DO THE CONFLICT RESOLUTION STRATEGIES IDENTIFIED DESCRIBE HOW YOU HANDLE THIS SITUATION?

NOT AT ALL	TO SOME DEGREE	EXACTLY

3. <u>Conflict Caused by Overloading the Project Manager</u>. Assigning the project manager too many projects or study tasks, or assigning him tasks not related to his project may give rise to conflict. The project manager may feel he has too much to do and not enough time to do it. This conflict can be a result of schedule changes.

HOW WELL DO THE CONFLICT RESOLUTION STRATEGIES IDENTIFIED DESCRIBE HOW YOU HANDLE THIS SITUATION?

NOT AT ALL	TO SOME DEGREE	EXACTLY

4. _Personal Conflicts_. Conflict may be caused by intrapersonal disagreements (e.g., moral issues raised by his project task) as well as interpersonal disagreements with members of his project team.

HOW WELL DO THE CONFLICT RESOLUTION STRATEGIES IDENTIFIED DESCRIBE HOW YOU HANDLE THIS SITUATION?

NOT AT ALL	TO SOME DEGREE	EXACTLY

5. _Conflict Over Technical Opinions and Performance Tradeoffs_. In technology-oriented projects disagreements may arise over technical issues, performance specifications, technical tradeoffs, and the means to achieve technical performance.

HOW WELL DO THE CONFLICT RESOLUTION STRATEGIES IDENTIFIED DESCRIBE HOW YOU HANDLE THIS SITUATION?

NOT AT ALL	TO SOME DEGREE	EXACTLY

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CONFLICT RESOLUTION STRATEGIES

<u>Strategy A</u>. Strategy A is a group effort to resolve con-
flict by using a problem solving and/or negotiating tech-
nique. The group may consist of the project manager and his
supervisor, the project manager and individuals external to
the project who have a vested interest in the project, such
as potential users and sources of information.

<u>Strategy B</u>. The resolution strategy of B is the project
manager's personal internal prioritization or tradeoff deci-
sions to determine the relative importance of a project task
on the project itself. B implies the project manager is
dealing with a conflict situation that is internal to him.
A project manager tasked with too many projects or numerous
tasks that are unrelated to the project may employ Strategy B
by making a decision to spend more time or resources on one
project at the expense of another.

<u>Strategy C</u>. Strategy C is a strategy used to transfer the
conflict to another individual or group of individuals in an
attempt to resolve the conflict. The project manager may
feel someone else can handle the situation more effectively.
A project manager that avoids a conflict situation, such as a
difference in technical opinions, by not dwelling on the con-
flict situation is using Strategy C.

<u>Strategy D</u>. A project manager using D as a resolution stra-
tegy is attempting, at a personal level, to sell his project
and create a favorable atmosphere for his project through a
logical reasoning and at times persistant process. In an
attempt to obtain commitment of resources to his project, the
project manager may perceive that personal contact or inter-
action may be more effective than established formal proced-
ures.

<u>Strategy E</u>. If the project manager perceives the resolution
of a conflict is beyond his capability, then he may resign
himself to live with the conflict situation. E is typified
by a situation such as monetary constraints imposed by higher
headquarters and the feeling by the project manager to
"accept the fact and press on."

APPENDIX D

Comparison of Discussion Data

and Validation Device

Table 11

Comparison of Discussion Data and Validation Device

Project Manager	Conflict Situation	Strategy Indicated in the Discussions	Strategy Indicated on Validation Device
A	Adminis. Tech. Opin.	Cooperating Cooperating	Cooperating Cooperating
B	Tech. Opin.	Accepting	Accepting
C	Tech. Opin. Commitment	Transferring Persuading	Cooperating* Persuading
D	Adminis. Commitment Tech. Opin. Adminis.	Persuading Transferring Transferring Cooperating	Persuading Transferring Cooperating* Cooperating
E	Adminis. Commitment Adminis.	Accepting Persuading Cooperating	Accepting Persuading Cooperating
F	Commitment Tech. Opin. Commitment	Persuading Cooperating Cooperating	Persuading Cooperating Cooperating
G	Commitment Overload Adminis. Tech. Opin.	Persuading Reordering Accepting Cooperating	Persuading Reordering Accepting Cooperating
H	Overload Tech. Opin. Tech. Opin. Commitment	Accepting Cooperating Transferring Cooperating	Cooperating* Cooperating Transferring Cooperating

Continued

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Table 11 (Continued)

Project Manager	Conflict Situation	Strategy Indicated on the Discussions	Strategy Indicated on Validation Device
I	Tech. Opin. Adminis. Commitment Tech. Opin.	Transferring Cooperating Cooperating Cooperating	Transferring Cooperating Cooperating Transferring*
J	Tech. Opin. Tech. Opin. Adminis. Overload Commitment	Cooperating Accepting Cooperating Cooperating Persuading	Cooperating Cooperating* Cooperating Cooperating Persuading
K	Commitment Tech. Opin. Overload Commitment	Reordering Cooperating Reordering Cooperating	Cooperating* Cooperating Reordering Cooperating
L	Tech. Opin. Adminis.	Accepting Accepting	Accepting Accepting

*Strategy obtained from the discussions is different from that obtained from the validation device.

Overall accuracy rate = 84%

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APPENDIX E

Validation Device Data

Table 12

Validation Device Data

SITUATIONS / STRATEGIES	Administrative	Commitment	Overload	Personal	Technical	TOTAL	USEAGE
Accepting	3	0	0	1	0	4	Exactly
	6	8	7	4	4	29	To Some Degree
	3	4	3	6	6	22	Not At All
Cooperating	6	4	3	6	8	27	Exactly
	5	7	5	4	3	24	To Some Degree
	1	1	2	0	0	4	Not At All
Persuading	3	6	0	2	3	14	Exactly
	7	5	4	8	4	28	To Some Degree
	1	1	6	1	3	12	Not At All
Reordering	0	1	6	0	0	7	Exactly
	4	3	3	5	3	18	To Some Degree
	6	8	1	5	7	27	Not At All
Transferring	0	0	1	1	2	4	Exactly
	4	7	5	6	8	30	To Some Degree
	6	5	5	4	2	22	Not At All
TOTAL	55	60	51	53	53	272	

APPENDIX F

Revised Validation Device

REVISED VALIDATION DEVICE

This validation device contains descriptions of five conflict situations and five conflict resolution strategies. Please read each conflict situation and in the blocks provided, indicate how well each strategy describes the way you would handle the situation. More than one strategy may be placed in a block and not all blocks need be used. If you have not experienced the situation, please do not mark the blocks and proceed to the next conflict situation.

CONFLICT RESOLUTION STRATEGIES

Strategy A. Strategy A is a group effort to resolve conflict by using a problem solving and/or negotiating technique. The group may consist of the project manager and his supervisor, the project manager and individuals external to the project.

Strategy B. The resolution strategy of B is the project manager's personal internal prioritization or tradeoff decisions to determine the relative importance of a project task on the project itself. B implies the project manager is dealing with a conflict situation that is internal to him.

Strategy C. Strategy C is a strategy used to transfer the conflict to another individual or group of individuals in an attempt to resolve the conflict. The project manager may feel someone else can restore the situation more effectively.

Strategy D. A project manager using Strategy D as a resolution strategy is attempting, at a personal level, to sell his project and create a favorable atmosphere for his project through a logical reasoning and at times persistant process. The project manager perceives that personal contact or interaction may be effective to resolve the conflict situation.

Strategy E. This strategy serves to allow the project manager to live with a conflict situation that he feels he is unable to resolve. A project manager may employ this strategy if he feels his attempts at resolution may intensify the situation.

CONFLICT SITUATIONS

1. <u>Conflict Over Administrative Procedures</u>. A num-
ber of managerial and administrative-oriented conflicts may
develop over how the project will be managed and general
organizational policies and procedures. Some conflicts are
caused by constraints imposed on the project, project direc-
tion or scope, and procedures for administrative support.

NOT AT ALL	TO SOME DEGREE	EXACTLY

2. <u>Conflict Over Project Commitment</u>. Conflicts may
arise when attempting to acquire support for the project from
another organization either in the form of personnel or
other needed resources. This also involves getting the in-
dividual's best effort once acquired.

NOT AT ALL	TO SOME DEGREE	EXACTLY

3. <u>Conflict Caused by Overloading the Project Man-
ager</u>. Assigning the project manager too many projects or
study tasks, or assigning him tasks not related to his pro-
ject may cause conflict. The project manager feels he has
too much to do or not enough time to accomplish it. This
conflict can result from schedule changes.

NOT AT ALL	TO SOME DEGREE	EXACTLY

4. <u>Personal Conflicts</u>. Conflict may be caused by
intrapersonal disagreements (e.g., moral issues raised by his
project task) as well as interpersonal disagreements with
members of his project team.

NOT AT ALL	TO SOME DEGREE	EXACTLY

5. <u>Conflict Over Technical Opinions and Performance
Tradeoffs</u>. In technology-oriented projects, disagreements
may arise over technical issues, performance specifications,
technical tradeoffs, and the means to achieve technical
performance.

NOT AT ALL	TO SOME DEGREE	EXACTLY

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